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ABSTRACT

Project ALERT (Adult Literacy Enhanced & Redefined through Training) was a 3-year effort to develop and deploy a number of innovative approaches to delivering workplace literacy programs to business partners, including manufacturers and unions. The project designed, developed, and implemented workplace literacy programs tailored to the organizations and participants' skills and cultural backgrounds through the following methods: conducting a comprehensive analysis of jobs, employees, and organizations; collaboratively designing and developing workplace literacy programs responsive to the unique needs of the organizations, jobs, and employees such as whole language-oriented, interactive multimedia, and learner-centered classroom instruction; designing and developing a range of culturally sensitive instructional methods and materials that are both technology and nontechnology oriented; designing resource-rich classrooms that support traditional and technology-based instruction; and recruiting participants, implementing the site-specific programs, and providing for reinforcement and transfer of training to the workplace. The project conducted project evaluation and program impact research through survey forms and pre- and posttests. Dissemination activities included publications and presentations. Regular meetings were held with leaders from partner organizations to discuss how the program could become institutionalized, a permanent part of their ongoing employee program. The project also planned to diffuse products and services into a follow-on project and to document its work. (YLB)

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ED 424 377

Project ALERT Accomplishments by Objectives

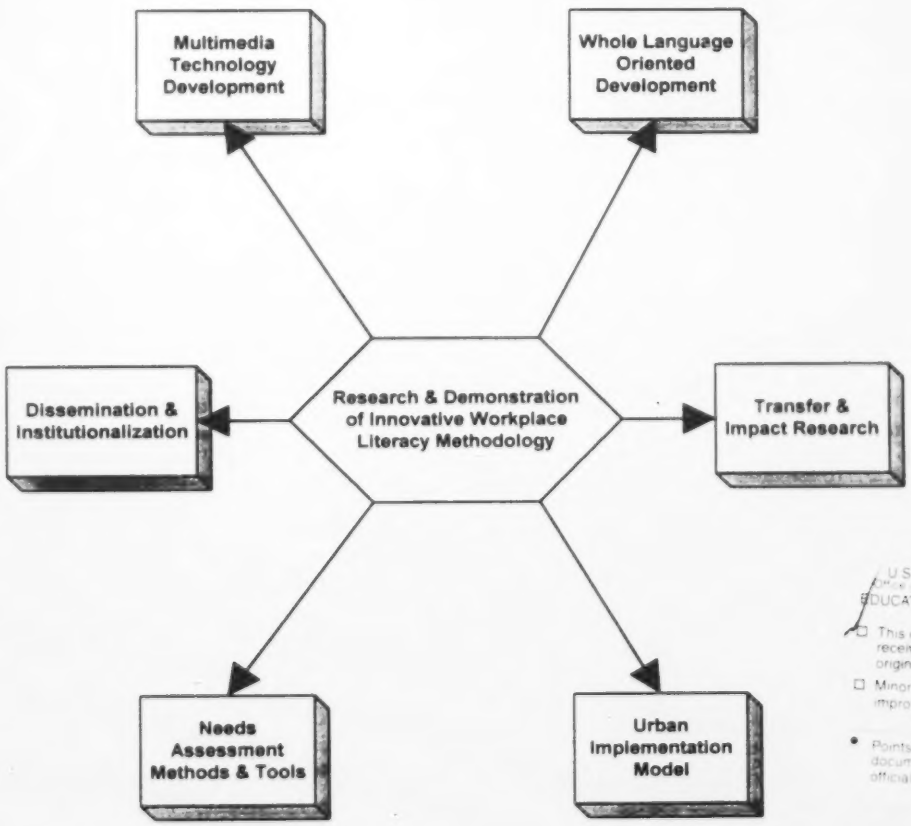
FINAL PERFORMANCE REPORT
Three-Year Results

Reporting Period: November 1, 1995 through October 31, 1997

Project Overview

Funded by a grant from the US Department of Education's National Workplace Literacy Program, Project ALERT was a three-year effort to develop and deploy a number of innovative approaches to delivering workplace literacy programs. A diagram depicting the major components of the project is given below. The top portion shows the two main methods that are used to develop instruction -- multimedia technology and Whole Language Oriented methods. Neither of these methods is widely employed in workplace literacy programs at present so an understanding of the development, deployment, and workplace impact of the methods would increase knowledge of their potential use.

Project ALERT
Linking Major Components


Multimedia Technology Development
Whole Language Oriented Development
Dissemination & Institutionalization
Research & Demonstration of Innovative Workplace Literacy Methodology
Transfer & Impact Research
Needs Assessment Methods & Tools
Urban Implementation Model

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The bottom boxes denote the two major processes to be validated and documented in order to generalize the findings of the project -- needs assessment and implementation. Three needs assessment instruments (hourly employee interview, supervisor interview, and workplace observation checklist) were developed and validated. The Urban Implementation Model represents a set of complex processes because variables include unionized vs. non-unionized settings, large vs. small companies, on-site programs vs. the use of a local site as delivery outreach to companies in a community, coordination with local adult education programs, leadership changes and a variety of opportunities and challenges.

The middle two boxes represent the process of research (in Transfer and Impact Research) and the results of the research and major project activities (Dissemination and Institutionalization) -- most of which occurred during the latter stages of the project. A research plan was formulated to gather all data from initial site visits through needs assessment, classroom forms, six-month and one-year follow up activities. The data storage and retrieval process was facilitated with a customized database. Analysis of the data was meant to facilitate the writing of professional papers about project work as well as to provide timely reports to project sponsors and others.

General Goals

There are major goals for the project as stated in the proposal to the US Dept. of Education sponsors. They are:

Goal 1 ***To design, develop, and implement innovative workplace literacy programs that are tailored to the organization, and the skills and cultural backgrounds of participants.***

Goal 2 ***To conduct project evaluation and program impact research.***

Goal 3 ***To disseminate the program, program products, and research findings.***

Goal 4 ***To promote program institutionalization and diffusion***

Highlights of project accomplishments related to these objectives are shown in Table 1 below. This display depicts the year to year progress of the project work with the status of the major categories of the project goals. A brief description of the major activities is provided with outcomes or status reports.

Table 1

Goals and Deliverables Over Three Years

Category	Year 1	Year 2	Year 3
Model Curricula Whole Language -- Davis Multimedia -- Chrysler Integration -- City Mgmt	WL-Initial development & testing M- Initial development I - Initial selection	Curricula completed at Davis and City Disposal; in process at Axle. Some courses can transfer; Wayne Center: test vendor supplied CBT	Products validated & generalizable to other settings; Some products copyrighted; begin license sales; transfer to follow-on Literacy Project
Model Implementation Plans Small Manufacturer -- Davis Large Mfg. -- Chrysler Service -- City Mgmt Community Service -- Wayne Center	Documented meetings and contacts; noted constraints and positive events; recorded information in data base; developed initial process flow steps	Analyze data to develop improved plan; test plan through Wayne Ctr. operations; document Wayne Ctr plan; document constraints at all sites; initiate staff development activities	Document products include process plans, recruitment programs and training programs for site liaisons; demonstrate influential role of organized labor; develop lessons learned; began instructor certification
Additional Locations Test vendor supplied CBT	NA	Recruit locations to validate instruction transfer; experimental testing of alternative delivery	Work at selected two other sites to test further methodological refinements; improve implementation guidelines
Research Validation External Evaluation Internal Evaluation	Development and refinement of needs assessment process and data collection tools; selection / development of participant testing protocols; develop research model	Develop and validate measures to relate to business issues; Develop methods for reports on program impact; Conducted two external evaluation reviews	Wrote reports on program activities for each site; one external evaluation review; Cost benefit analysis completed. Research analyses completed.
Institutionalization Organizational Learning Working Relationships Ease of Transfer	Journal records of meetings and understanding of site-specific constraints	Collate existing data; form hypotheses on institutionalization; plan process to obtain support from management & labor leadership	Build on-going Partner relationships; set up contractual relations for continuation if desired; developed leverage plan for EZ Literacy project
Dissemination Academic Network with Others	One presentation at Illinois Literacy Conference based on Whole Language work	3 Conference Presentations; testimony at NSSB Hearing; "All Partners" Conference	6 Conference Presentations (some for Journal Articles); hosted second "All Partners" Conference
Delivery to Participants Number Types of Measures	Records of participation & testing of learning gains; Projected enrollment = 100; Actual enrollment = 56	Records of participation; testing & 6-month follow-up; projected enrollment =300; Actual enrollment = 290	Records of participation; testing & 6-month & 1 yr. follow-up; projected enrollment=300; Actual enrollment = 337

Partner Organizations

Grants from the National Workplace Literacy Program require commitment and support from business partners in order to provide the best opportunity for success. The business partners for Project ALERT included the following organizations:

- UAW-Chrysler National Training Center (NTC)
- Chrysler Detroit Axle
- Davis Tool and Engineering
- City Management Corporation
- UAW Local 961
- UAW Local 174

The UAW- Chrysler NTC committed the large majority of cost share to the project that included the purchase of 20 new multimedia personal computers, the released time of employees at the Chrysler Detroit Axle plant, the use of space and some staff time at the UAW-Chrysler Wayne Family and Community Learning Center (Wayne Center), the cost of classroom construction at the Axle plant, and considerable staff time contributed from providing technical expertise and time at coordination meetings. Davis Tool renovated a storage area for their on-site classroom, and City Management completely refurbished a trailer at their City Disposal Systems site including the purchase of five new computers, new heating, air conditioning, phone lines and furniture.

Chrysler Detroit Axle has approximately 1300 employees in 28 departments. Their primary products include gears and axles for Chrysler's midsized cars. There was management and union consensus to concentrate project work on the Gear Division (4 departments of 283 employees) where technology is the newest. The plant plans to increase its overall use of computer-numeric controlled machines (CNC) in part production throughout the facility.

City Disposal Systems is a small 85-person division of City Management Corporation that has more than 900 employees in the US. Disposal is located in the inner city and serves as a transfer point for refuse collection from dumpsters located in Detroit. Major needs were noted to increase the available pool of truck drivers as well as to increase communication and computer capabilities of employees.

Davis Tool and Engineering is a 235-person supplier of flywheels and related components to auto and truck assembly plants. The primary machines utilized are midsized-stamping presses and many have computer-numeric controls. The primary needs identified by management and union leadership were to upgrade the skills of a number of front line workers to qualify as apprentices in their skilled trades area and to increase the level of mathematics to make more effective use of Statistical Process Control methods.

Wayne Center is one of the nine Regional Training Centers sponsored by UAW-Chrysler to serve union and family members in areas near to major Chrysler plants. It contains a computer laboratory of 20 networked, multimedia computers, four classrooms, and a large lecture hall.

Project ALERT coordinated delivery of instruction to companies located in the area, which is centrally located in Detroit's East Empowerment Zone.

Discussion of Results by Goal and Objective

Goal 1 ***To design, develop, and implement innovative workplace literacy programs that are tailored to the organization, and the skills and cultural backgrounds of participants.***

Objective 1-1. To conduct a comprehensive pre-design analysis of jobs, employees, and organizations to gather data requisite to the design of effective literacy training.

Initial work for the project was performed at Davis Tool. At this site, the instruments were pretested and validated. Only minor modifications were necessary at other sites.

Davis Tool pre-design analysis. The pre-design analysis determined the basic parameters for literacy instruction based on input from the union, management, and employees. This critical phase of the project for one of our four sites was completed on May 17, 1995. Valuable data resulting from the pre-design analysis included: requisite competencies for job performance and advancement, employee preferences for class scheduling and location, degree of job satisfaction, prior training, etc. Detailed below are some of the major tasks performed during this phase.

- A needs assessment flow chart was designed. This document detailed the steps for performing a pre-design analysis, which assured consistency across all four sites.

- A needs assessment matrix was constructed. This document matched the type of data required to an appropriate instrument; again, assuring for consistency.

- Three data collection instruments were designed, piloted, revised and validated.
  - Hourly Employee Interview
  - Supervisor Interview
  - Observation Checklist

- Data collected by interviewing approximately 25 hourly employees, union officials and supervisors; and by observing shop-floor operations.

Subsequent work was performed at the other sites. Brief descriptions of these activities follow.

City Management:

Site is called City Disposal Systems (17 employees, 4 supervisors and 2 managers interviewed at the 92-person site). Site observation form completed. Completed Sept. 8, 1995.

Chrysler Detroit Axle (Axle):

Site has approximately 1300 employees in 28 departments. Management and union consensus was to concentrate efforts on Gear Division (4 departments of 283 employees). Interviewed 21 employees, 5 supervisors and 2 managers in Gear work areas. Site observation form completed. Completed November 3, 1995.

UAW/Chrysler Wayne Family Center (Wayne Center):

Site is community outreach location that was considered as an opportunity to serve small to midsized companies in inner city. Four companies contacted with only managers interviewed. Needs assessment data collection was assisted through third-party local company associations.

Other activities included:

- First Joint Training Meeting at Axle took more than two months of preparation to pull off. It occurred on December 15, 1995. Since then, three additional meetings have occurred. Generally, all parties are represented totaling more than 20 people per meeting.

- City Management provided a detailed analysis of their employees, which includes educational backgrounds, ages, gender, educational goals/interests, and job classifications.

- Chrysler Detroit Axle initial target group identified, but data supported conclusion of communication skill deficiencies throughout the facility. No issues regarding cultural differences with Arab-speaking employees or other minorities could be justified. Thus, ESL instruction was left out of curriculum plans. {See later comments regarding the implication of these findings in Objective 1-3.}

- City Management had requested the initiation of programming at an additional site, Inland Waters. We proposed the needs assessment, but the process was eliminated, and instruction was begun in one class. The suspension of instruction two weeks after it begun justified our initial request for this activity. That is, we would not have wasted their time and our time in a location not prepared for delivery.

- A site identified through the Wayne Center was located as the initial target for community outreach. Mercy Hospital performed their own needs assessment which documented basic skill needs for around 100 employees. We used their

results to identify participants for a pilot course of 16 to attend classes at the Wayne Center. PLATO basic skills reading courses were used for instruction.

Objective 1-2. To collaboratively design and develop workplace literacy programs that are responsive to the unique needs of the organizations, jobs, and employees.

Three major types of instruction are being implemented across the various sites: *Whole-language-oriented, Interactive multimedia, and Learner-Centered Classroom Instruction.* The general status of each is provided in Table 2.

Table 2
Curriculum Products List
Implementation / Pilot By Site

Site	Course Label	Type	Status
Davis Tool & Engineering	Pre-Apprentice Prep	Whole Language	Ready for dissemination Course to be leveraged in EZ work
Davis Tool & Engineering	Pre-Statistical Process Control	Whole Language	Ready for dissemination
Davis Tool & Engineering	Interpersonal Communication & Problem Solving	Learner-centered	Transferred as result of discussion at All Partners Mtg. (Sept. 1996)
City Management	Commercial Driver's License Prep	Traditional CBT (Off-the-shelf site license purchase)	Licensed from Penn State
City Management	Effective Communication	Whole Language (augmented with computer use)	Ready for dissemination
City Management	Technology for the Workplace	Learner-centered using computers as tools	To be modified into "Computer Basics" after grant period
City Management	Numbers at Work	Whole Language	Ready for dissemination
City Management	Interpersonal Communication & Problem Solving	Learner-centered	Transferred as result of discussion at All Partners Mtg. (Sept. 1996)
Detroit Axle	Effective Communication with Computers (reading / writing basics)	Interactive Multimedia and Instructor-facilitated	Tested new software for development; cannot be dissemination because of proprietary rights
Detroit Axle	Interpersonal Communication & Problem Solving	Learner-centered	Ready for dissemination; transferred to all other sites

Site	Course Label	Type	Status
Detroit Axle	Math for Machine Operators	Interactive Multimedia and Instructor-facilitated	Ready for dissemination
Detroit Axle	Axle Process Flow demonstration CD ROM	Information only	Ready for dissemination
Detroit Axle	Gear Talk	Interactive Multimedia	Not completed nor tested during grant period
UAW-Chrysler Wayne Center--Frankel Metal	Quality Fundamentals and Data Skills	Traditional CBT -- PLATO	3 employees completed with good results; not used by others
UAW-Chrysler Wayne Center--Mercy Hospital	Reading Improvement	Traditional CBT -- PLATO	Transferred to continued funding under EZ
UAW-Chrysler Wayne Center--DCT, Inc	Workplace Basics from PLATO	PLATO via Internet connection	Not completed during grant period

Whole-language-oriented curriculum development. The Davis Tool workplace education program was based largely on the Whole Language Approach. This approach links instruction with prior knowledge and incorporates actual workplace materials and situations into lessons and instructional materials. During Year 3, we launched the first of our two courses on SPC (Statistical Process Control) Preparation. Since this course is directly connected to accomplishing training goals toward QS 9000 certification, Davis Tool has agreed to release employees from their jobs to attend SPC-Prep classes. This was not initially expected from this company.

The *Numbers at Work* course was developed and tested at City Disposal. Results for one section showed that continued development and testing should be suspended. There was not sufficient interest shown by employees

Apprenticeship-Prep: No further activity was executed under ALERT funding. We are linking this work to the Empowerment Zone effort. We are pursuing a possible relationship with UAW headquarters (Solidarity House) to combine our course with one that they have developed through the use of US Dept. of Labor funds. A second effort is planned to convert this course to a multimedia course using EZ funds as cost share

Traditional Computer-Based Education / Training. This traditional form of literacy instruction was used at the City Management site at City Disposal, Detroit Axle and at the Wayne Center.

- Following needs assessment the first priority identified was preparation for passing the Commercial Driver's License exam. There were significant needs for new as well as back-up drivers.

- The software, *R.O.A.D. to Success*, from the Institute for the Study of Adult Literacy at Penn State was selected to fit the need identified. A site license was purchased by October 13, 1995. Instruction with this software typically required between 30 to 36 hours of classroom time on the computers.

- Following success with this software, the preparation for passing the Commercial Driver's License exam was expanded to include City Management headquarters office. This was done to make the course more readily available to other divisions of City.

- At the Wayne Center, agreements were made with two vendors to install CBT programs on an experimental basis until October 1996. The two vendors are TRO Learning (PLATO) and The Learning Tree (JSEP and Star 2010). Software leasing extended the use until June 30, 1997 with TRO using EZ funding. Three different organizations took advantage of the training.

Interactive multimedia curriculum development. The Chrysler Detroit Axle plant was the recipient of this high-tech form of instruction. The instructional strategy was developed, the development/production area (location of custom authoring/programming) was designed, and all necessary hardware and software put into place. Twenty multimedia PC's were installed, ten each at the Axle and Wayne Center locations. Lastly, various off-the-shelf literacy software programs were reviewed for use as supplemental instruction until our custom software was completed. Some specific results follow:

- Curriculum development task list built for one course, Math for Machine Operators (computer numeric controlled machines) training using multimedia.

- At Axle, a second program designed to teach basic reading and writing skills on the computer using The New Reading Disk, acquired from a company in Great Britain, was developed and refined. A site license and five copies of the program were purchased. This multimedia program was customized to the environment by incorporating "Axle-ese" -- common language and terms used in the plant-- collected by additional interviews with employees and supervisors. This course is facilitated by an instructor and is about 40 hours in length. With the success of this course, the Axle plant has opted to purchase the current five disks. We have also ordered ten more to use in the EZ work.

Learner-Centered Classroom Instruction. This form of instruction was never planned for the project. However, as a result of needs assessment at the Axle plant, the need for one course in the domain of communication was required. This course, Interpersonal Communication and

Problem Solving, was based on group interaction that emphasizes both individual verbal communication and team-based interactions.

This particular class proved to be our most popular course with all three major sites participating in delivery. A total of 22 sections were offered across all four sites.

Objective 1-3. To design and develop a range of culturally sensitive instructional methods and materials that are both technology and non-technology oriented.

The Project team has dropped this objective. There were not sufficient needs validated at the partner sites to devote project resources to complete this objective. At the time the proposal was written, there was some discussion with regard to the Arab-speaking population at Chrysler Detroit Axle. During the detailed needs assessment activity, it was determined that justification for development in this area was not warranted.

Objective 1-4. To design resource-rich classrooms that support traditional and technology-based instruction.

Resource-rich classrooms. The instruction areas at all four sites have been designed to support both major forms of instruction. For example, at Davis Tool, the employees provided input regarding classroom location preference and design. At Axle, the classrooms are large, bright and contain separate tables for traditional instruction and computer carrels for the PC's. Some specific results follow:

Davis Tool

- Instruction site identified, approved and prepared (including tables, chairs, etc.).
- Inventory of instructional supplies and equipment were ordered and appropriate materials stored on site. Supplemental whole-language materials acquired.

Chrysler Detroit Axle

- Classrooms constructed; one computer lab sufficient to hold 9 computers, and instructor desk and whiteboard were purchased.
- Designed specifications for computers were determined in cooperation with the ALERT team. Computers were purchased and installed following specifications.

City Management

- Commitment for mobile instructional facility (trailer) made from site and headquarters management.

- Five computers specified and ordered.

- Trailer facility modified with heating, electric lines, phone lines, window treatments, alarm system and furniture.

UAW Chrysler's Wayne Center

- Existing instruction facilities toured and re-arranged. Facility contains two traditional classrooms and one computer lab with 18 computers on a local area network.

- Existing computers were upgraded, and a schedule for using the facility was established.

- Software installation completed by vendors for testing and experimentation. Software included PLATO Workskills curriculum from TRO Learning and Job Skills Enhancement Program from Invest Learning. Five instructors were trained in the use of these courseware packages as of May 13, 1996.

- An Open House for small companies on the East Side of Detroit to showcase the use of the Wayne Center occurred on June 18, 1996. Marketing and recruitment was facilitated through two intermediary organizations, the Eastside Industrial Council and the Northeast Manufacturers Association.

Objective 1-5. To recruit participants, implement the site-specific programs and provide for reinforcement and transfer of training to the workplace.

Recruiting, implementing, reinforcing, transferring. An employee of Detroit Public Schools led the key aspect of implementation, and she is referred to as Project Coordinator. She was on leave from her adult education position from May 1995 through August 1997. The specifics of her role and successful performance are documented in the Implementation Model of Goal 4.

Her responsibilities are considerable as she led the recruitment efforts at Davis, City and Detroit Axle, hired and trained the contract instructors, and monitored the progress at each of those sites. She also participated in curriculum development to make the modifications necessary to achieve well-received and targeted instruction at each site. Each of the eight instructors employed by Project ALERT was limited to 20 hours per week due to contract constraints imposed by the University. The instructors, in addition to teaching the classes according to the lesson plans developed, must also collect the relevant data for project documentation.

Instruction began at the first site, Davis Tool, on August 22, 1995; at the second site, City Management, on November 22, 1995; at the third site, Chrysler Detroit Axle on April 23, 1996. Pilot instruction began at the Wayne Center in June 1996 and continued through December 1996.

Davis:

- The first instructor was hired on July 24, 1995. Orientation of instructor initiated immediately.

- Marketing of the first course (Apprenticeship Prep) was performed via articles in the company newsletter and one-on-one recruitment in the plant.

- Project staff conducted two employee meetings.

- First classes, end of first shift and beginning of second shift, started on August 22. There were 22 and 18 participants in each section. Instruction was held two days a week (Tues. and Thurs.) with Wednesday being an open day for one-on-one tutoring.

- The "transfer point" was selected as the completion of the actual Differential Aptitude Test (DAT) provided for all employees following the end of instruction. The DAT was adopted by this organization to satisfy the "academic" selection criterion for the apprenticeship selection process.

City Management

- The second instructor was hired on November 1. Orientation of instructor initiated immediately.

- First class recruited for two days per week, Monday and Wednesday, and started on November 27, 1995. There were 3 students in the class.

- The "transfer point" was selected as the taking of the actual Commercial Driver's License exam at the Secretary of State's office following completion of instruction.

Chrysler Detroit Axle

- UAW Liaisons were selected for recruitment and targeting of literacy needs. Individuals were part of the regular hourly workforce who were specially selected because of their knowledge of various areas of the plant. These individuals received specialized training for their role by a consultant employed by the UAW-Chrysler National Training Center in cooperation with the Project Team. Throughout the project, five different individuals occupied this role so continual retraining and orientation was necessary.

- UAW Liaisons were oriented and trained for their work on the project on August 1 - 3, 1995.

Actual enrollments in all class sections by site are shown in Table 3.

Table 3
Class Sections and Enrollments

Course Label	Location			
	Chrysler Detroit Axle	**Davis Tool & Engineering**	**City Management**	**Other**
Apprenticeship Prep		3 sections (65): 23 24 18		
Statistical Process Control Prep		4 sections (30): 7 8 8 7		
Commercial Driver License Prep			8 sections (37): 4 5 3 5 4 4 3 9	
Technology for the Workplace			6 sections (40): 5 4 5 10 8 8	
Effective Communication			3 sections (19): 7 6 6	
Effective Communication on Computer	17 sections (126): 6 8 6 9 8 8 9 9 8 7 6 7 4 9 6 7 9			
Math for Machine Operators	9 sections (76): 7 11 9 10 6 9 7 8 9			
Interpersonal Communication & Problem Solving	14 sections (155): 13 9 9 13 10 10 12 12 12 9 8 9 16 13	5 sections (64): 13 15 11 11 14 ~~12 14~~ (2 sections cancelled)	3 sections (22):~~11~~ 11 11 (1 section cancelled)	13 (Warren Conner Devel. Coal.)
Numbers at Work			2 sections (9): 6 3	
Reading Improvement (PLATO)				17 (Mercy)
Writing Improvement				7 (Warren-Conner)
Quality Control Fundamentals (PLATO)				3 (Frankel Metal)
TOTALS	**40 sections; N = 357**	**12 sections; N = 159**	**22 sections; N= 127**	**4 sections; N = 40**

Recruiting

The recruitment process has varied considerable by site. At Davis, a plan was developed using a general plant-wide announcement meeting, an employee meeting with project staff at their local union hall (without management presence), a volunteer shop floor member, and personal interaction with employees on the shop floor. Early on, one hourly employee (one of those interviewed during the needs assessment process) volunteered his time as an "advocate" of the program. His assistance throughout the process was acknowledged for its considerable contribution.

At City, recruitment was somewhat hampered by the lack of the regular work schedules and no central location where employees gather. Thus, announcement and flyers were prepared for distribution at the paycheck distribution point, bulletin boards, and personal "walking around the yard". At City we relied on one person (an assistant to the site manager) to assist us, but this did not work out well. When we moved our courses to the City Management headquarters office, we received significant assistance from the trainer assigned to the project. As a result, recruitment flowed quite smoothly after that point during Year 3. At Axle, two UAW "liaisons" were selected and trained for their role. Training was completed over a two-day period in August 1995. The liaisons assisted in composing course flyers and talking on the shop floor with employees at breaks and at other times. Their work was made difficult with the size of the facility and the number of employees (1300). Additional cooperation and commitment was required from the local union leadership, plant management and staff from the UAW-Chrysler National Training Center in order to coordinate released time for the liaisons as well as the employees who became program participants. Additional and continuing work on the part of the liaisons was needed to foster attendance at the class sessions.

Recruitment at the Wayne center was considerably different and with very long lead-time. Considerable community contact activities began in January, 1996 with attendance at regular meetings with two organizations: the Eastside Industrial Council (a group of 60 companies in Detroit representing a large variety of industrial and service firms) and the Northeast Manufacturers Association (a group of 35 small to midsized companies in the same Detroit region). Using these meetings as a forum to discuss the program and promote Project ALERT, credibility was established with organizational leadership and company representatives. Additional assistance was gained through the support of one additional organization, the Detroit Economic Growth Corporation, whose staff attended many of these meetings. Through this process, a mailing list of potential companies was obtained for use in promoting the opening of the center with an Open House on June 18, 1996.

At Detroit Axle, the large size of the plant, high demand to get into courses, changing shifts, increased workload, and new employees continued to place heavy demands on our Coordinator and on the UAW Liaisons assigned to assist us. Seniority issues also factored into the process. However, the courses remain full and have achieved wide acceptance. As a transition strategy, the Local Joint Training Committee (the governing body at the plant whose approval is required for any training involving union members) moved to place one course on non-released time on an experimental basis beginning in the latter portion of Year 3. Full enrollment in the initial

three sections surprised the Project team and Axle representatives. These classes began in June 1997.

This experience in recruitment has proven invaluable when we launched the Empowerment Zone project in January 1997. We have established a base of operations, have established relations with local business groups, tested the courseware and delivery system.

Implementation

The implementation process documentation is the subject of one of the models identified in Goal 4. Considerable detail regarding results is provided there. This process had considerable variation in execution across the sites with the one at the Wayne Center most unique due to the target audience and focus on community-based outreach to smaller companies.

We began a "staff development seminar" in August 1996, and concluded 12 sessions in May 1997. The purpose was for instructors to convey needed information as well as to keep them apprised of the overall project and their roles in maintaining high quality standards for interaction with participants and partner organizations. We also determined that some instructor time needed to be devoted to instructional development to further customize the instruction delivered at each site. This process of continuous improvement was applied to each of courses developed. Each course was modified for its second delivery through this assistance.

The Wayne Center implementation can be viewed as an experiment in community outreach to a group of smaller industrial firms. One portion of this experiment was to use the center as a "transfer point" for existing courses. Thus, the curricular materials developed for Davis, City, and Detroit Axle would be transferred to the Wayne Center for use in other companies (realizing the caveat that these course were based on some customized needs assessment not to be performed at the "transfer" companies). Second, through the cooperation of two vendors TRO Learning (PLATO) and The Learning Tree (JSEP and Star 2010), a vast capability to deliver substantial curricula can be used for experimentation. Over 7000 hours of potential instruction was possible through these two sources.

Reinforcement

A model for Supervisor Orientation and Supervisor Follow-up was developed and refined to make sure front-line supervisors understood what employees would learn in the classes and how they could support the new learning behavior. Supervisors are asked to support the educational programs and also given suggestions on how to do that. After the initial meeting, a follow-up is scheduled to get feedback and suggestions from the supervisors. These sessions have proved to be very beneficial at the Detroit Axle plant.

At Davis Tool and City Disposal, instructors scheduled extra sessions to help employees with specific needs. The "tutorial" session gave employees a chance to an address issues that would not be suitable in a class room situation. At City Disposal, one long-term employee was a virtual non-reader who needed extra time and help to work on emerging reading skills. At Davis, the

instructor provided individualized math tutoring to help those employees who were not able to move through the materials as easily as the majority of the class.

Transfer of Training

At each site and for each course, the project plan calls for the identification of immediate direct impact for the instruction; this is what we have termed the *transfer point*. Transfer points are part of the Research Impact plan documented in Goal 2. A couple of examples of this data collection process are given below.

At City Disposal, those who have obtained TIPs were given an opportunity to have hands-on instruction with the Training Department's truck driving school. City Disposal employees also learned to produce a company newsletter. This format gave employees an opportunity to practice their reading, writing, speaking, and listening skills in a site-specific context.

We began to cross-pollinate courses developed for one location and deliver them in another following the All Partners Meeting in September 1996. This was especially true for the Interpersonal Communications course. We also initiated the process to test out marketing of these courses within our EZ project.

Goal 2. ***To conduct project evaluation and program impact research.***

Impact Research Summary.

The following provides a brief description for the types of data collected to measure project outcomes. Copies of each instrument are to be found in the companion document, Project ALERT Research Report. To determine all students (descriptions follow in next section) completed gains and students' reactions, pre and posttests, as well as survey forms. At the beginning of each course, all students completed the following survey forms and pre-tests:

- *Learner Enrollment*
- *Learner Expectation* (the top part)
- *The Adult Basic Education* (TABE) test (reading portion)
- Customized pre-test/tests for each course.

At the end of each course, students completed survey forms and post-tests:

- *Learner Assessment*
- *Learner Expectation* (the bottom portion)
- Project ALERT Participant Survey, a course evaluation
- The Adult Basic Education (TABE) reading post-test
- Customized post-test/tests for course (same as pre-test)

To obtain follow-up information from participants, two data collection forms were devised for use at a six-month and twelve-month period following the class. Due to the late start of the instructional delivery, only limited information was collected at the twelve-month period. Instruments were completed in a one-on-one session with staff.

All students were given the reading portion of *The Adult Basic Education* test (TABE). The students of the *Math for Machine Operators, Apprentice Prep, SPC Prep, Numbers at Work* classes also completed the math portion of the TABE. Use of the TABE was suspended during the last six months of the project (prior to October 1, 1997).

Customized pre and posttests were designed for each course to test specific course concepts. Students at the beginning and end of the course to determine gains completed these. Some classes also had an additional customized test if objectives warranted its use. For example, an additional customized computer test was given to *Effective Communication on Computer* class participants relating to computer skills.

The tests used for the individual courses are listed in Table 4 showing the learning gains across all classes in all locations except for the Wayne Center.

Descriptions of the Tests and Forms

The reading portion of the TABE required students to read four passages that ranged from approximately 350 to 415 words in length. These passages are in different formats (recipe, page from Yellow Pages, and informational articles). They then read the five to seven questions after each passage and selected the best of four multiple-choice answers to test their comprehension or interpretation of the passage. This is a timed test, allowing students 25 minutes to finish the 25 questions.

The math portion of the TABE required students to complete problems with addition, subtraction, multiplication, and division of whole numbers, mixed fractions, division of fractions, decimals, percentages and negative numbers. Students were given 9 minutes to complete the 15 problems.

The *Learner Enrollment* contained 40 items that included demographic information as well as self-ratings of job literacy abilities, workplace context, and perceptions of basic skills.

The *Learner Assessment* form contained 20 items that included assessments of abilities and work environment (identical to the enrollment form) as well as indication of interest in other classes, and possible impact factors that may have occurred since the course began.

At the beginning of the class the *Learner Expectation* form provided students a chance to indicate areas in which they hoped to improve while taking the course. At the end of the course the bottom portion was completed to indicate if the student learned what was wanted from the course and other courses he/she would be interested in taking.

The course evaluation form, called *Project ALERT Participant Survey*, consisted of 4 open ended questions that asks what students liked, disliked, and thought was most important about the course as well as open comments.

The follow-up forms for the *Six-Month Survey* and the *Twelve-Month Survey* were quite similar. There were two parts to each. First the employee completed 39 objective scaled questions rating

a number of possible outcomes to both on-the-job and everyday life. They next completed an interview schedule with 13 questions that lasted from 20 to 30 minutes. Results of this data have not been finalized.

Learning Outcome Data

The data presented in Table 4 contains information on participant leaning. Following each course name is the total number of students completing the class. After each specific test is the number of students that completed both the pre and posttests of that particular test. The numbers are likely to differ due to difficulties in obtaining completed instruments from the participants. Data from pilot sessions of the classes of the two multimedia classes at Detroit Axle were excluded from this analysis.

The means (average) for each pre and post score are provided along with the percentages of the raw scores (the mean divided by the total possible score). There is an indication to show statistical significance. Also included is the number of students that showed improvement from the pre to post score of a test.

Table 4

A Summary of Project ALERT Pre-Post Learning Gains

Results for Chrysler Detroit Axle

Course and Testing Instrument	Number of students	Mean Scores Pre-test Raw Score % %	Mean Scores Post-test Raw Score	Statistically Significant	Number who Improved
Math for Machine Operators	63				
TABE Math	21	7.6 (51%)	9.1 (61%)	Yes	14
Customized MMO	48	16.2 (54%)	20.4 (68%)	Yes	43
Effective Communication on Computer	110				
TABE Reading	77	14.9 (60%)	15.9 (64%)	No	39
Customized ECC	89	20.0 (48%)	25.0 (60%)	Yes	68
Custom Computer	75	12.6 (58%)	16.3 (77%)	Yes	59
Interpersonal Communication	124				
TABE Reading	83	16.5 (66%)	18.0 (72%)	Yes	28
Customized IPC	103	10.9 (36%)	18.5 (62%)	Yes	44

Results for Davis Tool and Engineering

Course and Testing Instrument	Number of students	Mean Scores Pre-test Raw Score %	Mean Scores Post-test Raw Score %	Statistically Significant	Number who Improved
Apprentice Prep	58				
TABE Math	34	8.4 (56%)	10.1 (67%)	Yes	22
TABE Reading	34	18.4 (74%	19.7 (79%)	No	22
Customized APP	34	22.5 (70%)	25.7 (80%)	Yes	26
Interpersonal Com/ Prob. Solving					
TABE Reading	54	18.6 (74%)	19.5 (78%)	No	28
Customized IPC	54	10.8 (36%)	18.8 (62%)	Yes	47
SPC Prep					
Customized SPC I	12	15.0 (41%)	20.4 (55%)	Yes	9
Customized SPC II	14	3.6 (36%)	6.5 (65%)	Yes	12
TABE Math	13	7.7 (51%)	8.7 (58%)	No	6

Results for City Management Corporation

Course and Testing Instrument	Number of students	Mean Scores Pre-test Raw Score %	Mean Scores Post-test Raw Score %	Statistically Significant	Number who Improved
Commercial Drvr. License Prep					
TABE Math	15	2.7 (18%)	3.3 (22%)	No	8
TABE Reading	15	16.4 (66%)	17.1 (68%)	No	5
Customized CDL	18	38.5 (77%)	45.7 (91%)	Yes	16
Tech. For Workplace					
TABE Reading	16	14.5 (58%)	16.3 (65%)	No	11
TABE Math	16	6.8 (66%)	7.1 (68%)	No	9
Customized TW	31	8.1 (43%)	18.1 (91%)	Yes	28

Effective Commun.					
Customized EC	10	11.5 (46%)	12.0 (48%)	No	4
TABE Reading	9	8.2 (33%)	10.8 (43%)	Yes	8
TABE Math	10	4.3 (29%)	5.5 (37%)	No	7
Interpersonal Comm.					
Customized IPC	20	16.8 (56%)	21.3 (71%)	Yes	16
Numbers at Work	Complete data N=3	Not analyzed			

External Evaluation. The external evaluators completed three site visits-- one near the end of Year 1, a second in March 1996 and the third visit in Year 2 in October 1996. In addition, they conducted a review of the multimedia materials at their university following their last visit. Summaries of these reports are provided separately.

In addition, we sent monthly reports of staff activities and accomplishments to the external evaluators. At another level of data collection, we designed and implemented the specifications for a comprehensive computer database to support all project data collection, documentation, and reporting requirements. The database served as the cornerstone for the impact research.

The external evaluators were not able to complete a cost-benefit analysis for the overall project at the time on this writing. A new external evaluator was hired to complete that task. It is scheduled for completion in September 1998.

Goal 3. ***To disseminate the program, program products, and research findings.***

Dissemination. A listing of activities related to dissemination are given below.

Book Chapter

Brandenburg, Dale C. *Implementation of Workplace Education in a Small Manufacturing Environment*. A chapter in Rothwell, W.J. and Dubois, D. (eds.) In Action: Supplemental Guidelines for Improving Performance in Organizations. To be published by the American Society for Training and Development.

ERIC Document

Jarvis, Mary I. (1997). Initial considerations for developing workplace curriculum (based on the Whole Language concepts). ERIC Clearinghouse on Adult, Career, and

Vocational Education. Center on Education and training and Employment, the Ohio State University. (ED 404441)

Presentations

- Nancy Ruetz, Mary Jarvis, and Irene Sinclair presented at the Illinois Literacy Conference in January 1996. Project ALERT- Developing a Whole Language Curriculum for a Workplace Literacy Program

- Rita Richey and M. Tessmer, April 1996. The Role of Context in Learning and Instructional Design. A paper presented at the Annual Meeting of the American Educational Research Association Annual Meeting in New York City, NY. A full description of the process of contextual analysis and its role in instructional design, including its theoretical bases, a description of the procedures, and a case study of its application in Project ALERT, a federally-funded workplace literacy project.

- Nancy Ruetz, Mary Jarvis, and Irene Sinclair presented at Michigan Adult Curriculum Connection (MAC2) Conference in Detroit, MI, May 1996. Project ALERT - Using a Whole Language Approach to Develop Curriculum in the Workplace

- Nancy Ruetz, Mary Jarvis, and Irene Sinclair presented at the Illinois Literacy Conference in January, 1997; Lessons Learned from Applying Whole Language Concepts to Workplace Education

- Dale Brandenburg, at the International Society for Performance and Instruction Conference in April, 1997; Applying Performance Technology to Small Manufacturers

- Nancy Ruetz presented at the Workplace Learning Conference in Milwaukee, April 1997; Using Whole Language Concepts for Statistical Process Control.

- Dale Brandenburg presented at the Workplace Learning Conference in Milwaukee, April, 1997; Implementing Workplace Education-- Selling Solutions Not Just Education

- Nancy Ruetz, Mary Jarvis, and Irene Sinclair presented at the Coalition of Adult Basic Education (COABE) Conference in Detroit, MI in May 1997: Characteristics of Effective Whole Language Instruction for Workplace Education

- Nancy Ruetz, Mary Jarvis, and Irene Sinclair presented at Michigan Adult Curriculum Connection (MAC2) Conference in Detroit, MI in May, 1997 at a Pre-Conference Institute; Taking Whole Language to Work.

- Dale Brandenburg presented at the Adult Literacy and Technology Conference in Boise, ID in August 1997; Network Brokering: A Solution for Small Company Skill Upgrading

- Gary Powell and Nancy Copeland presented at the AECT Annual Conference in February 1998. Innovative Multimedia Implementation at Chrysler Motors.

- Dale Brandenburg presented at the Workplace Learning Conference in Milwaukee, April, 1998; Manufacturing Technology Bridge Programs for Inner City Adults: A Tale of Two Cities

Other Activities

In addition, a temporary World Wide Web site was established in May 1997 with full on-line capability scheduled for July 1998. Its address is

http://www.coe.wayne.edu/Grants/wped/index.html

Six completed instructional products were put on display at the Workplace Learning Conference in Milwaukee, April 1997 and in April 1998. A product and ordering brochure was created. Some initial orders were received to date for materials.

Goal 4. ***To promote program institutionalization and diffusion***

This goal is multifaceted. At one level, a portion of our efforts during Year 3 was to promote the adoption of programs we developed directly into continuing offerings for each of our Partner Organizations – this was labeled as *Institutionalization*. At another level, we had planned to leverage, or *diffuse*, our products and services into our follow-on project as part of Detroit's Empowerment Zone. Finally, at a third level, we wanted to document our work so that others might benefit from some of the materials and models created during the project, which we termed *Documentation and Model Development*. Each of these is discussed in turn below.

Institutionalization

Our most concerted effort in this area during Year 3 was to hold regular meetings with leaders from each partner organization to discuss how the program can become institutionalized, or become a permanent part of their on-going program for employees. A brief description of the results of these efforts is described below by site.

Davis Tool

Following the end of Project ALERT, we have established an on-going relationship in delivering the Apprenticeship Prep course including arranging for an external party to provide unbiased testing services. Since the course was built to their specifications, both union and management appear quite pleased with the results obtained. Davis has also referred us to other small manufacturers interested in similar programs. They did not follow through on training the entire company with the Interpersonal Skills course. This was due mainly to changes in financial conditions.

City Management

City personnel were very supportive of our work, but they have no desire to develop their own training department, just like Davis. We were able to have one course as a follow-on immediately after the project ended, but shortly thereafter, the company was sold to a large syndicate and the training director we had enjoyed a close working relationship with was forced to leave the company. Even though the Human Resource director stayed on, very little in the way of future training plans were paramount in the minds of the new owners. We still enjoy a positive relationship with the company in terms of job referrals from our Empowerment Zone work, but little in the way of education or training.

Chrysler Detroit Axle

All parties to the Axle implementation – local union leaders, local site management, national union leaders (UAW –Chrysler National Training Center (NTC)) -- were encouraged by the results achieved. Axle management purchased the five "reading disks" that had been purchased under the project for continued use. We worked with the Local Joint Training Committee for more than eight months in an attempt to have them adopt our materials and continue the training with their own contractual staff. We offered to train and support whomever they might hire to continue the work developed. Even though the NTC staff was especially impressed with the multimedia materials, adoption and use at Axle appear limited.

A curious aspect of this relationship is that the UAW NTC is a major partner in out follow-on Empowerment Zone project. Thus, the general relationship continues to flourish even though the Axle plant did not follow through with the adoption of the curriculum built for them.

Wayne Center

The positive working relationships with the staff at the Wayne Center flowed smoothly into our follow-on project. From the Wayne Center, we launched our effort to first serve companies in that depressed urban area, and then began efforts with local residents. We were also able to use many of the courses developed under ALERT for delivery at the Wayne Center, thus giving us immediate capacity and capability. In September 1997, we used the Wayne Center as a kick-off Open House for the Empowerment Zone effort. At that time we used the ALERT materials to showcase the capabilities of the program.

Diffusion

The major effort associated with how we defined diffusion was the incorporation of products services, and lesson learned into our follow-on project as part of Detroit's Empowerment Zone (EZ) effort. In order to understand this diffusion, the following brief description of that project is given to provide the context.

Innovative Workplace Literacy (Detroit Empowerment Zone Program No. E 3.6)

Funded by a $1.43 million grant from HUD to develop and deliver site-based, workplace literacy and pre-technical training programs to Empowerment Zone businesses so that employees and residents have the fundamental skills for job advancement. The Project is unique within the EZ

Plan because it is the **only** effort designed to deliver education and training to address job retention and job growth for EZ residents in existing EZ businesses. The project is a critical facet of the overall mission of the Empowerment Zone because it directly supports the economic development goals of job retention and job creation. The program will use innovative delivery methods (for example, multi-media, multi-cultural instruction, whole language-oriented methods). Rather than being concerned only with individual skill improvement, the project is directed toward transfer of training to the workplace and its ultimate impact on organizational productivity and product/service quality. Priorities are directed toward small and medium-sized businesses, especially manufacturing. Project Director is Dr. Dale C. Brandenburg, Professor of Instructional Technology.

From the experiences, results, and relationships built with UAW-Chrysler, their Wayne Center staff, the third-party intermediary organizations on the East Side of Detroit, initial contacts and success with a few local companies, we were able to launch the EZ effort without having to recreate significant infrastructure-building activities. Thus, Project ALERT offered us significant leverage to move to another significant effort.

Subsequently, in 1998, following a relationship built with a similar EZ effort in Chicago, we were able to secure National Science Foundation funding for further curriculum development efforts. This project will focus on educationally disadvantaged and ESL populations in small companies in both Detroit and Chicago.

We are also endeavoring to become involved with other regional and national efforts to leverage Project ALERT experiences. We have been invited to join the national *Manufacturing Skills Standards Council* and are represented on two committees; we were asked by a State of Michigan agency to assist in creating Internet linkages to service providers across the state; and as a final example, we were appointed to a city planning group to study literacy issues for inner city adults.

Documentation and Model Development

The final area for this goal is documents that provide the legacy for Project ALERT activities. The following documents were created to aid in the diffusion of Project ALERT activities. They are listed below. Each set is separate document.

Reports

Needs Assessment in Workplace Education

Includes the following instruments: Hourly Employee Interview; Supervisor Interview and Observation Checklist

Implementation of Workplace Education Programs

Includes the site by site case history and generalizable conclusions

Report of the External Evaluators

Includes summaries of three site visits and the cost-benefit analysis

Research Report

Includes site by site findings according to the project objectives and the following instruments

Pre-Training

Learner Expectation Summary (five questions on participant expectations)
Learner Enrollment Form (modifications)

Learner Completion Form (modifications)

Post Training Data Collection Instruments (detailed participant interviews)

6 Month Follow-up Survey
6 Month Follow-up Interview
12-Month Follow-up Survey
12-Month Follow-up Interview

Brochure

Workplace Education -Project ALERT Materials Description and Price list

Newsletters

Education at Work (Academic Versions)

Issue 1: Project ALERT Overview
Issue 2: Innovative Multimedia Implementation at Chrysler Corporation

Education at Work (Popular Version)

Issue 1: Davis Tool
Issue 2: City Disposal
Issue 3: Chrysler Detroit Axle

Developing a Whole Language Curriculum for Workplace Literacy

Drafts completed for presentation at Illinois Literacy Conference: January 1996 and January, 1997 as well as two other 1997 conferences.